



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/768,843	01/23/2001	Gavin Horn	019186-002910US	1492
20350	7590	11/16/2005	EXAMINER	
TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			VU, NGOC K	
			ART UNIT	PAPER NUMBER
			2611	

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/768,843

Applicant(s)

HORN ET AL.

Examiner

Ngoc K. Vu

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-54 and 56-95 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 44-54 and 56-67 is/are allowed.
- 6) ☒ Claim(s) 1-43 and 68-95 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

***Response to Arguments***

1. Applicant's arguments with respect to claim 68 have been considered but they are not persuasive.

Applicant indicates that claim 68, as amended, includes limitations similar to those in amended claim 1. Applicant further argues that Krause would not be combinable with Kermode to teach output symbols generated are independent of when a client begins a reception and enough output symbols are available to avoid looping. These arguments are not persuasive based on the following reasons.

First, in response to applicant's arguments against the references individually, one cannot show non-obviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Second, the newly added limitation of claim 68, particularly, the feature "...enough output symbols are available to avoid looping" is not disclosed in the specification.

Third, claim 68 is rejected in view of teachings of Krause and Tash of the records.

Fourth, Krause teaches that a video program is divided into a number of video segments. The segments are partitioned into N ordered subsequences of elements. When the video program is distributed to a receiver as a data stream that starts at the beginning of the sequence of elements (i.e., the first element of segment 1 as denoted by reference numeral 12) and ends with the last element of segment n (i.e., denoted by reference numeral 16). During transmission, one element belonging to each segment is transmitted during the time slot assigned for elements from that segment. Krause further teaches that the sequence of elements are encoded by a digital encoder and then partitioned by a circuit into N ordered subsequences of elements each representative of one of N video segments. When the receiver selects and

Art Unit: 2611

assembles the elements which form the segments of the video program (see col. 6, lines 42-51 and 65-67; col. 7, lines 20-33; col. 8, lines 22-27 and 56-65). That is, Krause teach encoding ordered subsequences of elements of each of segments of video program. The encoding is therefore performed before or during transmission of the video program. From the feature of encoding and transmission the video program as addressed above, the system of Krause provides enough sequences of elements of segments in order to assemble properly the received segments for playing the video program at the receiver.

Krause does not explicitly teach each block including one or more input symbols and generating output symbols for each block and transmitting the output symbols on the corresponding one or more channels. However, Tash discloses that a source first gathers K symbols from the incoming data stream to form a block, then the K symbols are encode by an encoder to produce N encoded symbols. The N encoded symbols are transmitted to a receiver over channels (see col. 9, lines 47-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Krause by transmitting stream of data over a channel to a receiver including input and output symbols as taught by Tash in order to efficiently perform error correction.

2. Applicant's failure to adequately traverse the Examiner's taking of Official Notice in the last Office Action is taken as an admission of the fact(s) noticed.
3. Applicant's arguments with respect to claims 1-43 and 69-95 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 2611

5. Claims 1-43 and 68-95 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With respect to claims 1, 43, 68, 69 and 94, the newly added limitation "...enough output symbols are available to avoid looping" is not disclosed in the specification. The best relevant portion of the specification describes that the media object block scheduler 216 should ensure that there are enough output symbols generated for each block so that each segment can be served at the rate determined by the media object schedule generator 214. The specification further describes that the encoded symbols may then be broadcast repeatedly by transmit module 240 on each channel either in a looping manner, or by choosing a random output symbol each time (see Specification: page 17, lines 28+, page 18, lines 21+). Thus, nowhere in the specification supports the above limitation as recited in claims 1, 43, 68, 69 and 94.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 95 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear whether the limitation "encoding" referring to the limitation "blocks are encoded" recited in line 6 of claim 1. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-12, 14, 15, 17-19 and 21-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kermode et al. (U.S. 6,018,359 A) in view of Tash (US 6,732,325 A).

Regarding claim 1, Kermode discloses a method of scheduling a media object for transmission between a server (100 – see figure 1) and a client (115, 120 – see figure 1), the method comprising:

partitioning the media object into segments of blocks (a video file, such as movie, is divided into a series of sequentially organized data segments), wherein each block is a unit of media for which the client will wait to receive an entire block before playing out the block a segment is not actually played back until it is download in its entirety. This condition ensures that no segment will be played before its beginning has been downloaded), and wherein each segment includes an integer number of blocks (each data segment having an internal temporal order) (see col. 4, lines 29-32; col. 6, lines 37-44; col. 7, lines 21-23 and abstract);

determining one or more channels on which to serve each segment, the channels capable of carrying data between the server and the client (all segments for a particular movie are transmitted over one or more channels from the server to the receiver – see col. 5, lines 15-18 and 59-62 and col. 6, lines 9-13);

determining a rate at which to serve each segment (determining download rate of the segments - see col. 8, lines 19-29); and

determining a schedule pair for each channel, the schedule pair including a time at which the client may start receiving on the channel and a time at which the client may stop receiving on the channel (data is loaded asynchronously over channel  $P_A$ , so that download may commence at an arbitrary time  $t'$  and continue until time  $t'$  is reached during the next iterative transmission of the segment. That is, the receiver can begin downloading segment from a new channel as soon as a previous segment has been fully downloaded – see col. 6, lines 14-31).

Kermode further discloses that the receiver can begin downloading from a new channel as soon as a previous segment has been fully downloaded; it is not necessary to wait for the segment to loop back to its beginning (see col. 6, lines 16-19). The receiver can play movies back with no latency while loading in higher-order segments in the manner addressed above. The system of Kermode operates independently of subscriber viewing patterns, simply transmitting data, blocks delivery unwanted partitions and replaces them with partitions from desired movies (see col. 9, lines 14-16, 40-44 and 65-67). That is, the system distributes necessary or enough partitions or segments of movie such that the receiver can play movie back with no latency.

Kermode does not teach generating output symbols. However, Tash discloses that a source first gathers  $K$  symbols from the incoming data stream to form a block, then the  $K$  symbols are encoded by an encoder to produce  $N$  encoded symbols. The  $N$  encoded symbols are transmitted to a receiver over channels (see col. 9, lines 47-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Krause by transmitting stream of data over a channel to a receiver including input and output symbols as taught by Tash in order to efficiently perform error correction.

Regarding claim **2**, Kermode discloses that if the client minimally fulfills the schedule pair for each channel, the client will be able to play out the media object uninterrupted after a startup latency (see col. 9, lines 14-16; col. 5, lines 53-62; col. 6, lines 37-44).

Regarding claims **3 and 4**, Kermode discloses dividing the video file into a plurality of sequentially organized data segments, each data segment has an internal temporal order (see abstract).

Regarding claims **6-8 and 17**, Kermode discloses that segments are preferably downloaded at a rate at least equal to the playback rate, and desirably faster than the playback rate. When the segments reach the loaded as fast as it is consumed for display, and is received over a single channel, the data cannot be received at a rate greater than the playback rate (see col. 7, lines 7-9; col. 8, lines 8-11 and 22-26).

Regarding claims **9-12, 31, 34, 36-38**, Kermode teaches that at least one segment includes one or more block internally, and the blocks in the segment are same size (see abstract and col. 4, lines 29-31).

Regarding claim **14**, Kermode teaches that at least two segments have different sizes (see col. 6, lines 45-65).

Regarding claim **15**, Kermode teaches that each block in each segment is transmitted over one channel having the same rate (see col. 7, lines 7-14).

Regarding claims **18, 19, and 28**, Kermode teaches that segments are served on two channels at a same rate (see col. 7, lines 7-9; col. 5, lines 59-62).

Regarding claims **21 and 23**, Kermode discloses that the number of channels is equal to a number of concurrent channels at the client or served by the server (see col. 5-6, lines 62-4).



Regarding claim **22**, Kermode discloses that the client can minimally fulfill the schedule pair for each channel by downloading from a maximum number of concurrent channels, e.g., two channels (see col. 5, lines 59-62).

Regarding claims **24, 25, and 30**, Kermode teaches determining one or more channels, rate, a schedule pair steps are performed so as to optimize a server bandwidth required to provide the video file to client at a rate (e.g., playback rate) less than or equal to a maximum client download rate (download rate) (see col. 7, lines 7-9 and 60-62; col. 8, lines 6-29).

Regarding claim **26**, Kermode teaches determining a size of the segments so that the segment is completely downloaded by the client prior to when the segment is due to be played out (see col. 7, lines 21-24).

Regarding claim **27**, Kermode teaches the rate at which to serve the segments is an integer multiple of a base rate (see col. 6, lines 45-57).

Regarding claim **29**, Kermode teaches the receivers receive segments over two channels. The receiver can begin download segment from a new channel as soon as a previous segment has been fully downloaded (see col. 6, lines 16-20; col. 7, lines 36-40; col. 5, lines 59-62).

Regarding claims **32, 33, and 39**, Kermode teaches that sizes of segments are each less than or equal to a maximum segment size, wherein the maximum segment size is based on a maximum available storage at the client (see col. 5, lines 53-58 and col. 8, lines 56-60).

Regarding claim **35**, Kermode teaches determining block size by an encoding scheme (see col. 8, lines 30-33; col. 9, lines 20-23).

Regarding claims **40-42**, Kermode teaches that segment is served on at least two channels, wherein a rate at which the segment is served on one of the at least two channels varies over time (see col. 5, lines 59-62; col. 7, line 66 col. 8, line 29).

Regarding claim **43**, Kermode discloses a system for scheduling a media object for transmission between a server (100 – see figure 1) and a client (115, 120 – see figure 1), comprising:

a module for partitioning the media object into segments of blocks, wherein the segments contain one or more blocks (a video file, such as movie, is divided into a series of sequentially organized data segments), wherein each block is a unit of media for which the client will wait to receive an entire block before playing out the block a segment is not actually played back until it is download in its entirety. This condition ensures that no segment will be played before its beginning has been downloaded), and wherein each segment includes an integer number of blocks (each data segment having an internal temporal order) (see col. 4, lines 29-32; col. 6, lines 37-44; col. 7, lines 21-23 and abstract);

a module for determining one or more channels on which to serve each segment, the channels capable of carrying data between the server and the client (all segments for a particular movie are transmitted over one or more channels from the server to the receiver – see col. 5, lines 15-18 and 59-62 and col. 6, lines 9-13);

a module for determining a rate at which to serve each segment (determining download rate of the segments - see col. 8, lines 19-29); and

a module for determining a schedule pair for each channel, the schedule pair including a time at which the client may start receiving on the channel and a time at which the client may stop receiving on the channel (data is loaded asynchronously over channel  $P_A$ , so that download may commence at an arbitrary time  $t'$  and continue until time  $t'$  is reached during the next iterative transmission of the segment. That is, the receiver can begin downloading segment from a new channel as soon as a previous segment has been fully downloaded – see col. 6, lines 14-31).

Kermode further discloses that the receiver can begin downloading from a new channel as soon as a previous segment has been fully downloaded; it is not necessary to wait for the segment to loop back to its beginning (see col. 6, lines 16-19). The receiver can play movies back with no latency while loading in higher-order segments in the manner addressed above. The system of Kermode operates independently of subscriber viewing patterns, simply transmitting data, blocks delivery unwanted partitions and replaces them with partitions from desired movies (see col. 9, lines 14-16, 40-44 and 65-67). That is, the system distributes necessary or enough partitions or segments of movie such that the receiver can play movie back with no latency.

Kermode does not teach generating output symbols. However, Tash discloses that a source first gathers K symbols from the incoming data stream to form a block, then the K symbols are encoded by an encoder to produce N encoded symbols. The N encoded symbols are transmitted to a receiver over channels (see col. 9, lines 47-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Krause by transmitting stream of data over a channel to a receiver including input and output symbols as taught by Tash in order to efficiently perform error correction.

9. Claims 68-74, 77, 80-85 and 87-94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krause et al. (US 5,926,205 A) in view of Tash (US 6,732,325 A).

Regarding claim 68, Krause discloses an apparatus for serving a media object, the method comprising:

a block encoder (22 – see figure 2) receiving segments of a media object, wherein each segment includes an integer number of blocks, wherein each segment includes an integer number of blocks, and wherein each block is a unit of media for which a client will wait to

Art Unit: 2611

receive an entire block before playing out the block (see col. 6, lines 42-51; col. 7, lines 12-16), an input to receive an order in which to encode blocks (see col. 8, lines 54-62);

a transmitter (within server 31 – see figure 2) coupled receiving an indication of one or more channels on which to serve the segment (e.g., video segment identification information - see col. 7, lines 12-16 and 42-45) and a rate at which to server the segment (e.g., transmission rate - see col. 7, lines 1-7); and the transmitter configured to serve each segment at the corresponding rate over a channel (see col. 7, lines 1-7).

Krause teaches that a video program is divided into a number of video segments. The segments are partitioned into N ordered subsequences of elements. When the video program is distributed to a receiver as a data stream that starts at the beginning of the sequence of elements (i.e., the first element of segment 1 as denoted by reference numeral 12) and ends with the last element of segment n (i.e., denoted by reference numeral 16). During transmission, one element belonging to each segment is transmitted during the time slot assigned for elements from that segment. Krause further teaches that the sequence of elements are encoded by a digital encoder and then partitioned by a circuit into N ordered subsequences of elements each representative of one of N video segments. When the receiver selects and assembles the elements which form the segments of the video program (see col. 6, lines 42-51 and 65-67; col. 7, lines 20-33; col. 8, lines 22-27 and 56-65). That is, Krause teach encoding ordered subsequences of elements of each of segments of video program. The encoding is therefore performed before or during transmission of the video program. From the feature of encoding and transmission the video program as addressed above, the system of Krause, therefore, provides enough sequences of elements of segments to allow the receiver assembles properly the received segments for playing the video program.

Krause does not teach each block including one or more input symbols and generating output symbols for each block and transmitting the output symbols on the corresponding one or more channels. However, Tash discloses that a source first gathers K symbols from the incoming data stream to form a block, then the K symbols are encoded by an encoder to produce N encoded symbols. The N encoded symbols are transmitted to a receiver over channels (see col. 9, lines 47-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Krause by transmitting stream of data over a channel to a receiver including input and output symbols as taught by Tash in order to efficiently perform error correction.

Regarding claim 69, Krause discloses a method of receiving a media object that includes segments of blocks, wherein each segment includes an integer number of blocks, and wherein each block is a unit of media for which a client will wait to receive an entire block before playing out the block (see col. 6, lines 42-51; col. 7, lines 12-16), the method comprising:

receiving a media object description (video segment identification information) of the media object (see col. 7, lines 12-16 and 42-45);

joining and leaving each of a plurality of channels according to the media object description to download the segments (during each transmission of the interleaved data stream over channels, a receiver must be able to identify the elements of the particular video segment to be accessed, reconstructed and displayed, wherein the video segment identifiers are inserted into the interleaved sequence of elements as they are being transmitted to the receivers – see col. 12, lines 24-52; col. 6, lines 42-62);

reassembling the blocks in each segment (assembling the received elements in each segment – see col. 7, lines 12-33); and

playing the blocks out in an order after a startup latency (the receiver plays the video program by assembling, for each video segment, the subsequence of elements representative of the segment – see col. 8, lines 44-65; col. 9, lines 48-65; col. 12, lines 24-60).

Krause teaches that a video program is divided into a number of video segments. The segments are partitioned into N ordered subsequences of elements. When the video program is distributed to a receiver as a data stream that starts at the beginning of the sequence of elements (i.e., the first element of segment 1 as denoted by reference numeral 12) and ends with the last element of segment n (i.e., denoted by reference numeral 16). During transmission, one element belonging to each segment is transmitted during the time slot assigned for elements from that segment. Krause further teaches that the sequence of elements are encoded by a digital encoder and then partitioned by a circuit into N ordered subsequences of elements each representative of one of N video segments. When the receiver selects and assembles the elements which form the segments of the video program (see col. 6, lines 42-51 and 65-67; col. 7, lines 20-33; col. 8, lines 22-27 and 56-65). That is, Krause teach encoding ordered subsequences of elements of each of segments of video program. The encoding is therefore performed before or during transmission of the video program. From the feature of encoding and transmission the video program as addressed above, the system of Krause, therefore, provides enough sequences of elements of segments to allow the receiver assembles properly the received segments for playing the video program.

Krause does not teach each block including one or more input symbols and generating output symbols for each block and transmitting the output symbols on the corresponding one or more channels. However, Tash discloses that a source first gathers K symbols from the incoming data stream to form a block, then the K symbols are encode by an encoder to produce N encoded symbols. The N encoded symbols are transmitted to a receiver over channels (see

Art Unit: 2611

col. 9, lines 47-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Krause by transmitting stream of data over a channel to a receiver including input and output symbols as taught by Tash in order to efficiently perform error correction.

Regarding claims **70 and 71**, Krause discloses that the receiver begins to reconstruct a video program from its beginning, the receiver selects and assembles each element having a sequence number of 1 during the first pass, followed by the elements having a sequence number of 2 during the second pass and so on. The receiver identifies the elements of the video segment to be accessed, reconstructed and displayed based on video segment identification information (see col. 12, lines 24-60).

Regarding claims **72-74**, Krause discloses broadcasting segments via channels (see col. 5-6, lines 64-4; col. 7, lines 34-41).

Regarding claim **77**, Krause discloses that data is downloaded by a client at an unconstrained rate (see col. 7, lines 3-6).

Regarding claims **80-82**, Krause discloses that the receiver begins to reconstruct a video program from its beginning, the receiver selects and assembles each element having a sequence number of 1 during the first pass, followed by the elements having a sequence number of 2 during the second pass and so on. Krause further discloses that video segments which make up the video programs are essentially time-division multiplexed over sub-channels of the channel over which the video program is broadcast. The receiver can therefore be made to reconstruct and present any of the video segments to the subscriber by selecting the sub-channel carrying the desired segment. This is also related to the rate at which the data stream can be transmitted over the distribution network as well as the rate at which data must be

Art Unit: 2611

received by the receiver to permit real-time reconstruction of the video segments (see col. 5-6, lines 53-4; col. 6, lines 52-67; col. 12, lines 24-60).

Regarding claim **83**, Krause teaches that the receiver increases its reception rate when it experience no congestion and decreases its reception rate when it experiences congestion since the receiver is permitted real-time reconstruction of the video segments at the desired level of the picture quality (see col. 5-6, lines 59-4).

Regarding claim **84**, Krause teaches that reassembling the blocks in each segment includes reordering the original data according to its temporal position in each block (see col. 12, lines 24-45).

Regarding claim **85**, Krause discloses that the receiver processes reassembling and decoding the segment (see col. 8, lines 44-53). Krause does not explicitly disclose a FEC decoder for decoding. Official Notice is taken that FEC unit is used to perform error correction and decoding to output the video signal is well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the receiver of Krause by including FEC unit in order to perform error correction and decoding to output the video signal.

Regarding claims **87-90**, Krause shows that video segments are provided from server 31 to receiver 32 as illustrated in figure 2 (see figure 2). Krause does not specifically disclose the video segments are provided from at least two servers. Official Notice is taken that providing video programs from two or more servers to subscribers over the network is well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Krause by providing video programs from two or more servers to receivers in order to accommodate large number of clients.



Art Unit: 2611

Regarding claim **91**, Krause teaches playing a pre-downloaded segment during the startup latency (see col. 9, lines 42-44 and 48-51).

Regarding claim **92**, Krause teaches that the video program is downloaded by a receiver from a maximum number of channels concurrently (see col. 5-6, lines 64-2).

Regarding claim **93**, Krause teaches that segment is download via channels varies over time (see col. 6, lines 59-67).

Regarding claim **94**, Krause discloses a system for receiving a media object that includes segments of blocks, wherein each segment includes an integer number of blocks, and wherein each block is a unit of media for which a client will wait to receive an entire block before playing out the block (see col. 6, lines 42-51; col. 7, lines 12-16), comprising:

- a module for handling input of a media object description (receiving video segment identification information) of the media object (see col. 7, lines 12-16 and 42-45);

- a module for handling for channel joins and channel leaves for each of a plurality of channels according to the media object description to download the segments (during each transmission of the interleaved data stream over channels, a receiver must be able to identify the elements of the particular video segment to be accessed, reconstructed and displayed, wherein the video segment identifiers are inserted into the interleaved sequence of elements as they are being transmitted to the receivers – see col. 12, lines 24-52; col. 6, lines 42-62);

- a module for handling for reassembling the blocks in each segment (assembling the received elements in each segment – see col. 7, lines 12-33); and

- a module for handling for playing the blocks out in an order after a startup latency (the receiver plays the video program by assembling, for each video segment, the subsequence of elements representative of the segment – see col. 8, lines 44-65; col. 9, lines 48-65; col. 12, lines 24-60).

Krause teaches that a video program is divided into a number of video segments. The segments are partitioned into N ordered subsequences of elements. When the video program is distributed to a receiver as a data stream that starts at the beginning of the sequence of elements (i.e., the first element of segment 1 as denoted by reference numeral 12) and ends with the last element of segment n (i.e., denoted by reference numeral 16). During transmission, one element belonging to each segment is transmitted during the time slot assigned for elements from that segment. Krause further teaches that the sequence of elements are encoded by a digital encoder and then partitioned by a circuit into N ordered subsequences of elements each representative of one of N video segments. When the receiver selects and assembles the elements which form the segments of the video program (see col. 6, lines 42-51 and 65-67; col. 7, lines 20-33; col. 8, lines 22-27 and 56-65). That is, Krause teach encoding ordered subsequences of elements of each of segments of video program. The encoding is therefore performed before or during transmission of the video program. From the feature of encoding and transmission the video program as addressed above, the system of Krause, therefore, provides enough sequences of elements of segments to allow the receiver assembles properly the received segments for playing the video program.

Krause does not teach each block including one or more input symbols and generating output symbols for each block and transmitting the output symbols on the corresponding one or more channels. However, Tash discloses that a source first gathers K symbols from the incoming data stream to form a block, then the K symbols are encode by an encoder to produce N encoded symbols. The N encoded symbols are transmitted to a receiver over channels (see col. 9, lines 47-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Krause by transmitting stream of data over a

Art Unit: 2611

channel to a receiver including input and output symbols as taught by Tash in order to efficiently perform error correction.

10. Claims 13, 16, and 20, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kermode et al. (U.S. 6,018,359 A) in view of Tash (US 6,732,325 A) and further in view of Bolosky et al. (US 6,134,596 A).

Regarding claims **13, 16 and 20**, Kermode teaches serving segments over two channels (see col. 5, lines 59-62). Kermode does not explicitly teach serving at different rates. However, Bolosky teaches that the system is configured to deliver data streams at multiple data rates. That is, the system delivers of multiple data streams at different data rates (see col. 11, lines 17-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Kermode by serving data streams at different data rates as taught by Bolosky in order to make efficient use of storage and network resources.

11. Claims 75 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krause et al. (US 5,926,205 A) in view of Tash (US 6,732,325 A) and further in view of Bolosky et al. (US 6,134,596 A).

Regarding claims **75 and 76**, Krause does not disclose a plurality of segments are downloaded concurrently at an aggregate rate, and wherein the aggregate rate is less than a maximum download rate. However, Bolosky discloses that data streams 0-8 have one of four different data rates ranging from 1 to 4 Mb/s, while each server network card has a maximum data rate of 10 Mb/s (see col. 14, lines 4-10). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Krause by providing data streams at a rate that is less than a maximum data rate as taught by Bolosky in order to efficiently transmit data to clients over the network.

Art Unit: 2611

12. Claims 78 and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krause et al. (US 5,926,205 A) in view of Tash (US 6,732,325 A) and further in view of Kermode et al. (U.S. 6,018,359 A).

Regarding claims **78 and 79**, Krause does not explicitly download rate is greater than or less than play out rate. However, Kermode discloses that segments are preferably downloaded at a rate at least equal to the playback rate, and desirably faster than the playback rate. When the segments reach the loaded as fast as it is consumed for display, and is received over a single channel, the data cannot be received at a rate greater than the playback rate (see col. 7, lines 7-9; col. 8, lines 8-11 and 22-26). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Krause by including download rate is greater than or less than playback rate as taught by Kermode in order to provide high quality playback the video data.

***Allowable Subject Matter***

13. Claim 95 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

14. Claims 44-54 and 56-67 are allowed.

15. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of the record fails to teach or fairly suggest the limitation "generating output symbols for each block in the order using a chain reaction code to generate output symbols" as recited in claim 44.

***Conclusion***

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc K. Vu whose telephone number is 571-272-7306. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Grant can be reached on 571-272-7294. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2611

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Ngoc K. Vu', with a long horizontal flourish extending to the right.

Ngoc K. Vu  
Primary Examiner  
Art Unit 2611

November 9, 2005